

Serial No. 10/686,670

REMARKSRECEIVED  
CENTRAL FAX CENTERSTATUS OF CLAIMS

DEC 28 2006

Claims 1-11 are pending and under consideration.

ITEM 2: REJECTION OF CLAIMS 1-2 AND 9 UNDER 35 U.S.C. 102(e) AS BEING  
ANTICIPATED BY TAKATSU et al. (US PATENT PUB. 2003/0025965)

The rejection is respectfully traversed.

As recited in claims 1 and 2, an input level of each of (two or more) optical signals from respective variable optical attenuators is detected so as to control an attenuation amount of each of the corresponding variable optical attenuators. Accordingly, adjustment of a wavelength level in the wavelength division multiplexing (WDM) is made in two stages, one by the WM monitor and the other by the power monitor at the output terminal of each of the variable optical attenuators (VATs) of each wavelength.

Takatsu et al disclose feedback control of a wavelength level based on a result of analysis by a WDM monitor. A WDM monitor is used in the structure shown in FIG. 8 of the Takatsu et al reference, but a PD monitor (see, PINPD 10-2 and (0114)) is provided only to the input side of the variable optical attenuator and there is no monitor provided to the output side of the variable optical attenuator. Since the feedback control of Takatsu et al reference needs to monitor all wavelengths, a control is produced at a speed of several hundred milliseconds to several seconds, at a maximum.

On the other hand, according to the present invention, high-speed control is achieved since the power at the output side of the variable optical attenuator is monitored so as to control an amount of attenuation of each variable optical attenuator such that output power is made constant. The target value of the variable optical attenuators is computed by the WDM monitor that monitors all wavelengths. According to this two-stage control, both the uniformity of wavelength characteristics in the entire WDM and the high-speed control for each wavelength can be achieved at the same time. This effect of the present invention is described in the description, page 11, line 33 to page 12, line 15.

ITEM 3: REJECTION OF CLAIMS 1 AND 2 UNDER 35 U.S.C. 102(E) AS BEING  
ANTICIPATED BY MAEDA (USP 6,768,831)

The rejection is respectfully traversed.

The Maeda reference discloses an add/drop apparatus using an optical switch and an optical synthesizer. In the structure shown in FIG. 19 of the Maeda reference, part of a light

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being passed through an optical switch, a variable optical attenuator and a WDM synthesizer is branched by an optical coupler. Then, a level of each wavelength contained in WDM is monitored by a VAT monitor control part. This technique is the same as that disclosed in the Takatsu et al, reference, mentioned above. The detection point is only one point at the WDM monitor. The Maeda disclosure thus is different from the present invention, in which a two-stage monitor is provided by a PD monitor. Additionally, although the Maeda reference suggests a method of monitoring the VAT output (before WDM synthesis) by introducing the output to the VAT monitor control part as mentioned in the twelfth embodiment, this method does not use the WDM monitor and only one point is monitored, which is different from the present invention.

**ITEM 5: REJECTION OF CLAIM 4 UNDER 35 U.S.C. 103 (a) AS BEING UNPATENTABLE  
OVER TAKATSU ET AL. IN VIEW OF BANERJEE et al. (USP 6,671,466);**

**ITEM 6: REJECTION OF CLAIM 4 UNDER 35 U.S.C. 103 (a) AS BEING UNPATENTABLE  
OVER MAEDA IN VIEW OF BANERJEE ET AL.**

The Banerjee reference is commonly cited in items 5 and 6 to supplement the admittedly deficient disclosures of the Takatsu et al. and Maeda references of those rejections.

However, since the Banerjee et al. reference does not disclose two-stage control as disclosed in claimed herein, the Banerjee et al. reference cannot remedy the respective deficiencies of the Takatsu et al. reference and the Maeda reference.

#### **CONCLUSION**

In accordance with the foregoing, it is respectfully submitted to have been shown that the pending claims patentably distinguish over the references and rejections, of record.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

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If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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P.O. Box 1450 Alexandria, VA 22313-1450  
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By \_\_\_\_\_  
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